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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/620,488

07/15/2003

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EXAMINER

ENG, DAVID Y

ART UNIT

PAPER NUMBER

2155

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

mn

Office Action Summary	Application No. 10/620,488	Applicant(s) SAHITA, RAVI L.	
	Examiner DAVID Y. ENG	Art Unit 2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 22-25 and 27-30 is/are rejected.
- 7) ☒ Claim(s) 21 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/27/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Summary of the invention is missing in the specification. Applicant is requested to provide a summary of the invention after the background of the invention.

In the background of the invention (see the last sentence on page 2 of the specification), Applicant concludes that it becomes more and more difficult to monitor, detect and respond to inadvertent or malicious traffic anomalies for traffic passing through a node. However, the invention as claimed does not appear to solve that problem. The claimed invention is directed to a network processor and method for processing packets in according with rules stored in a CAM. It appears that a summary of the invention is able to clarify that.

Abstract

The abstract is objected to as being unclear. The description in the abstract is not related to statistics collection as indicated in the title nor the problem solved by the invention as set forth in the background of the invention. The abstract fails to clarify what each of the rule in the rule set represents. A new abstract which is more aptly descriptive of the nature and gist of the technical disclosure is requested.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 17, 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 17 is not understood. It appears that packet rule requests do not require counter offsets allocation. Further, the step of allocating counter offset has no functional relationship to the steps of parent claim.

As to claim 20, it is not seen how claim 20 is related to the steps of parent claim for gathering statistics on packets.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 and 16-20 and 22-25, 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Regev (USP 7,089,352) in view of Intel IXP12xx network processor (Applicant's cited prior art).

See at least the abstract, columns 1-2, Figures 1-3 and the description thereof in the specification of Regev. Regev teaches a system having a processor 210 and a CAM 100 (Figures 1 and 2). Regev teaches:

Claims 1, 16, 22, 27

A method of operating a network processor (processor 170, since Regev is in a network environment, processor 170 is a network processor), the method comprising:

Writing (storing entries into the CAM), to a shared memory accessible (CAM) by multiple packet processing engines (the secondary reference), a dynamic packet rule set (CAM entries), each rule specifying a packet offset (address of comparand register, see the abstract), a data pattern (content in a CAM entry), and an action code (increment the matching entry's counter, see the abstract);

writing, to an instruction store for the packet processing engines, execution instructions referencing the dynamic packet rule set (inherent, processor is inherently controlled by instructions); and

on at least one of the packet processing engines, while processing a packet and in response to the execution instructions, loading a first packet rule from the dynamic packet rule set, comparing packet data at the packet offset specified in the first packet rule to the data pattern specified in the first packet rule, and, when the comparison indicates a match, performing an action indicated by the action code specified in the first packet rule (see column 1 line 58 to column 2 line 6).

The only difference is that Regev has only one, and not plurality, processing element in his processor. As admitted by Applicant, Intel IXP12xx network processor for use in network processing is well known in the art. It is further well known that Intel IXP12xx network processor has a plurality of microengines for network processing. From the teaching of the Intel IXP12xx network processor datasheet, it would have been obvious to a person of ordinary skill in the art to use the Intel IXP12xx network

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processor so that packets can be processor by more than one microengine simultaneously.

Claims 2, 3

Masking is inherent in CAM.

Claims 4, 28

See the last two sentences of Regev's abstract.

Claims 5, 9, 18, 23

The "wherein clauses" merely consist of non-functional descriptive material.

Claims 6, 7, 29, 30

All the entries in Regev's CAM are meant to be accessed and searched.

Claim 8,

See "valid" in column 1 line 54-57.

Claim 17,

See counters in Figure 1 of Regev.

Claims 19, 24

Statistic data shown in the plurality of counters is meant to be retrieved for study.

Claims 20, 25

Padding shorter data pattern for alignment is well known in comparing two data patterns.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 10-15 are rejected under 35 U.S.C. 102(e) as being anticipated by
Regev (USP 7,089,352).

Claim 10

An integrated circuit comprising:

- a local memory ((CAM 100) capable of storing a rule table, the rule table organized with entries comprising a packet offset, a data pattern, and an action;
- a packet data queue (the register in Regev which receives packets) to receive packet data;
- a rule fetch unit (the circuit which access the CAM) to fetch rules from the rule table;
- a packet data fetch unit (the circuit in Regev which extract a portion of a packet and stored in a comparand register) to fetch a segment of packet data from the packet data queue, based on the packet offset fetched by the rule fetch unit;

match circuitry (see match detector in Figure 1) to compare the packet data segment fetched by the packet data fetch unit with the data pattern fetched by the rule fetch unit; and

an action unit to perform the action (increment the entry counter, see counters in Figure 1) fetched by the rule fetch unit when the match circuitry indicates a match between the compared packet data segment and data pattern.

Claim 11

Masking is inherent in CAM.

Claim 12

The collective counter shown in Figure 1 of Regev can be considered as a counter table. The circuit in Regev for accessing the counters can be considered as a counter table index.

Claim 13

All the entries in Regev's CAM are meant to be accessed and searched.

Claim 14,

See "valid" in column 1 line 54-57.

Claim 15

The "wherein clauses" merely consist of non-functional descriptive material.

Allowable Subject Matter

Claims 21 and 26

Claims 21 and 26 would be given favorable consideration if it is rewritten to independent form.

Other cited prior art

Kahle is cited to show a multi-scalar processor having a plurality of processing elements (processing engines). See Figure 4 in Kahle.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID Y. ENG whose telephone number is 571-272-3984. The examiner can normally be reached on M-F from 8AM to 3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SALEH NAJJAR, can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DAVID Y. ENG
PRIMARY EXAMINER